

08-14-00

08/11/00
JCS21 U.S. PRO
09/637397
00/11/00

THE ASSISTANT COMMISSIONER OF PATENTS
Washington, D.C. 20231

DOCKET NUMBER: ROC920000093US1
August 11, 2000

Sir:

Transmitted herewith for filing is the Patent Application of:

Inventor: Cary Bates et al.

For: SYSTEM, METHOD, AND PROGRAM FOR RECORDING PRESENTABLE DATA ACCESSED THROUGH INTERACTIVE LINKS DISPLAYED BY AN INTERACTIVE TELEVISION PROGRAM

Enclosed are:

- ☒ Patent Specification and Declaration
- ☒ 7 sheets of drawing(s).
- ☒ An assignment of the invention to International Business Machines Corporation (includes Recordation Form Cover Sheet).
- ☐ A certified copy of a application.
- ☐ Information Disclosure Statement, PTO 1449 and copies of references.

The filing fee has been calculated as shown below:

For	Number Filed	Number Extra	Rate	Fee
Basic Fee				\$690
Total Claims	21	- 20	1	x 18 = \$ 18
Indep. Claims	3	- 3		x 78 = \$
MULTIPLE DEPENDENT CLAIM PRESENTED			x 270 =	\$
TOTAL				\$708.00

- ☒ Please charge IBM Corporation Deposit Account No. 09-0465 in the amount of \$708.00. A duplicate copy of this sheet is enclosed.
- ☒ The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to IBM Corporation Deposit Account 09-0465. A duplicate copy of this sheet is enclosed.
- ☒ Any additional filing fees required under 37 CFR §1.16.
- ☒ Any patent application processing fees under 37 CFR §1.17.

CERTIFICATE OF MAILING BY "EXPRESS MAIL" UNDER 37 CFR § 1.10


"Express Mail" mailing label number: EL453463947US

Date of Mailing: August 11, 2000

I hereby certify that the documents indicated below are being deposited with the United States Postal Service under 37 CFR 1.10 on the date indicated above and are addressed to Box Patent Applications, Assistant Commissioner of Patents, Washington, D.C. 20231 and mailed on the above Date of Mailing with the above "Express Mail" mailing label number.

Marty Bower
(name of person mailing paper)

SIGNATURE of person mailing paper or fee

By 
Steven Lin, Registration No. 35,250.
FELSMAN, BRADLEY, VADEN, GUNTER & DILLON, LLP
Suite 350 Lakewood on the Park
7600B North Capital of Texas Highway
Austin, Texas 78731
Telephone (512) 343-6116

**SYSTEM, METHOD, AND PROGRAM FOR RECORDING PRESENTABLE DATA
ACCESSED THROUGH INTERACTIVE LINKS DISPLAYED BY AN
INTERACTIVE TELEVISION PROGRAM**

BACKGROUND OF THE INVENTION

1. Technical Field:

The present invention relates in general to interactive television, and, in particular, to recording and playing back interactive television programs. Still more particularly, the present invention relates to a system, method, and program for recording and playing back presentable data accessed through interactive links displayed by an interactive television program.

2. Description of the Related Art:

Interactive television is a video and audio technology that allows a user to interact with television programs. Interactive television involves broadcasting television programs containing links to networked information, such as web pages, that a viewer may selectively access. Examples of interactive television include web TV, Internet access, video on demand, and video conferencing. Web TV allows a user to view a web TV program, and while viewing the web TV program, activate links to the Internet or World Wide Web embedded in the program to retrieve and display web pages associated with the links. A web TV program generally is received utilizing an interactive television set-top box, which is a device that converts a broadcast television signal into an input video signal for display by a television set. The set-top box also allows a user to access and view pages of

the World Wide Web through an interactive television communication device, such as a modem device, coupled to an interactive television communication line, such as a telephone or cable television line, that provides networked access to the World Wide Web. The set-top box converts and displays the broadcast television signal to display web pages on the television.

To record interactive television programs, a video recording device, such as a video cassette recorder (VCR), is typically interposed between the set-top box and the television set. When the VCR is set to record a television program, the VCR records the data of the web TV program, which may be in Moving Pictures Experts Group (MPEG) format, for later display on the television set. The existing recording technology also allows information viewed on the television screen that resulted from the user activating links to networked information (e.g., web pages) to be recorded. However, existing VCRs cannot record the networked information for any links that were not displayed or viewed on the television screen. Existing VCRs consequently do not allow the viewer to interact with a recorded television program in the same way as a live broadcast program since existing VCRs do not record the data associated with any links in which the associated data were not displayed by the television set. For example, the viewer uses the VCR to record a television show having links to the World Wide Web. When the viewer plays back the web TV program on the VCR, the viewer may activate a link within the recorded web TV program being played back on the television set. The VCR will then access or attempt to access through the set-top box the web page (e.g., web address) on the World Wide Web associated with the activated link. In addition, when the viewer plays back a recorded web TV program, the links

Therefore, the present invention recognizes the need to record and play back interactive television programs in a manner that more closely resembles the programs during the original broadcast. In particular, the present invention recognizes the need to record and play back presentable data accessible through interactive links that are displayed within an interactive television program.

Variable	Mean	SD	Min	Max
Age	34.5	10.2	21	55
Gender	0.5	0.5	0	1
Marital status	0.6	0.5	0	1
Education	12.5	1.5	9	16
Income	15.2	5.8	5	35
Occupation	1.2	0.8	0	2
Health status	1.5	0.5	1	2
Stress level	2.5	1.2	1	4
Life satisfaction	3.5	1.5	1	5
Resilience	4.5	1.5	1	6
Optimism	5.5	1.5	1	7
Gratitude	6.5	1.5	1	8
Forgiveness	7.5	1.5	1	9
Compassion	8.5	1.5	1	10
Kindness	9.5	1.5	1	11
Generosity	10.5	1.5	1	12
Patience	11.5	1.5	1	13
Humility	12.5	1.5	1	14
Modesty	13.5	1.5	1	15
Self-control	14.5	1.5	1	16
Discipline	15.5	1.5	1	17
Perseverance	16.5	1.5	1	18
Endurance	17.5	1.5	1	19
Stamina	18.5	1.5	1	20
Strength	19.5	1.5	1	21
Power	20.5	1.5	1	22
Influence	21.5	1.5	1	23
Authority	22.5	1.5	1	24
Leadership	23.5	1.5	1	25
Management	24.5	1.5	1	26
Organization	25.5	1.5	1	27
Coordination	26.5	1.5	1	28
Communication	27.5	1.5	1	29
Interpersonal skills	28.5	1.5	1	30
Teamwork	29.5	1.5	1	31
Collaboration	30.5	1.5	1	32
Partnership	31.5	1.5	1	33
Relationships	32.5	1.5	1	34
Connections	33.5	1.5	1	35
Networks	34.5	1.5	1	36
Contacts	35.5	1.5	1	37
Associations	36.5	1.5	1	38
Groups	37.5	1.5	1	39
Communities	38.5	1.5	1	40
Societies	39.5	1.5	1	41
Cultures	40.5	1.5	1	42
Traditions	41.5	1.5	1	43
Customs	42.5	1.5	1	44
Beliefs	43.5	1.5	1	45
Values	44.5	1.5	1	46
Principles	45.5	1.5	1	47
Standards	46.5	1.5	1	48
Criteria	47.5	1.5	1	49
Measures	48.5	1.5	1	50
Indicators	49.5	1.5	1	51
Signs	50.5	1.5	1	52
Markers	51.5	1.5	1	53
Labels	52.5	1.5	1	54
Names	53.5	1.5	1	55
Titles	54.5	1.5	1	56
Descriptions	55.5	1.5	1	57
Definitions	56.5	1.5	1	58
Explanations	57.5	1.5	1	59
Reasons	58.5	1.5	1	60
Justifications	59.5	1.5	1	61
Arguments	60.5	1.5	1	62
Claims	61.5	1.5	1	63
Assertions	62.5	1.5	1	64
Statements	63.5	1.5	1	65
Declarations	64.5	1.5	1	66
Announcements	65.5	1.5	1	67
Revelations	66.5	1.5	1	68
Disclosures	67.5	1.5	1	69
Exposures	68.5	1.5	1	70
Uncoverings	69.5	1.5	1	71
Discoveries	70.5	1.5	1	72
Findings	71.5	1.5	1	73
Results	72.5	1.5	1	74
Outcomes	73.5	1.5	1	75
Consequences	74.5	1.5	1	76
Effects	75.5	1.5	1	77
Impacts	76.5	1.5	1	78
Influences	77.5	1.5	1	79

SUMMARY OF THE INVENTION

5 A system, method, and program product for recording
presentable data accessed through interactive links
displayed within an interactive television program are
disclosed. In accordance with the present invention, an
interactive television recording device receives an
interactive television signal containing one or more
interactive links associated with presentable data. In
10 response to receipt of a record command, the interactive
television recording device records the interactive
television program, and the presentable data associated
with the one or more interactive links are accessed and
recorded into a designated storage medium.

15 In a preferred embodiment, the interactive television
signal and the one or more interactive links are stored on
a first data storage medium, while the presentable data
are separately stored on a second data storage medium. If
20 a play command is received, the interactive television
recording device plays the interactive television signal
from the first data storage medium. If the user activates
an interactive link, the interactive television recording
device retrieves and plays the presentable data associated
25 with the interactive link from the second data storage
medium.

30 The above as well as additional objects, features,
and advantages of the present invention will become
apparent in the following detailed written description.

BRIEF DESCRIPTION OF THE DRAWINGS

5 The novel features believed characteristic of the invention are set forth in the appended claims. The invention itself however, as well as a preferred mode of use, further objects and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

10 **Figure 1** is a block diagram of an exemplary system for recording and playing back presentable data accessed through interactive links displayed within an interactive television program in accordance with the present invention;

15 **Figure 2** is a more detailed block diagram of an exemplary embodiment of the interactive television recording device in the system of **Figure 1**;

20 **Figure 3** is a more detailed block diagram of an exemplary interactive television set-top box in the system of **Figure 1**;

25 **Figure 4** is a flow chart of an exemplary method and program function for operating the interactive television recording device and the interactive television set-top box of **Figure 3** in accordance with the present invention;

30 **Figure 5** is a flow chart of a more detailed, exemplary method and program function for the recording operation in the method and program function of **Figure 4**;

5

10

15.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENT

With reference now to **Figure 1**, an exemplary system **100** for recording and playing back presentable data accessed through interactive links within an interactive television program is shown. System **100** of **Figure 1** includes an interactive television recording device ("ITRD") **104** coupled to an interactive television set-top box ("ITSB") **106**, which is in turn coupled to an interactive television display ("ITD") **108**, such as an interactive television set. An interactive television set may be a conventional television set coupled to an interactive set-top box. A communication link **105** transmits user commands from ITSB **106** to ITRD **104**. Interactive television signal **102** is received by ITRD **104**, which passes interactive television signal **102** to ITSB **106**. ITSB **106** is a device that converts interactive television signal **102** to an input signal for display of the interactive TV program by ITD **108**. ITSB **106** also allows the user to access the World Wide Web and display web pages on ITD **108**.

Interactive television signal **102** is a broadcast signal for providing interactive television programs, such as web TV programs, to ITD **108**. Within the interactive television programs broadcast through interactive television signal **102**, links, such as hyperlinks, may be displayed so that the user is able to select the links and access networked information. Networked information may include web pages, files, scripts, or documents that contain images, phrases, words, symbols, or other elements.

To record an interactive television program within interactive television signal 102, the user inputs a record command into ITSB 106, which transmits the record command to ITRD 104. ITRD 104 responds to the record command by recording the data for the interactive television program onto a first data storage medium, such as a first track of a video tape. ITRD 104 also records the links that may be displayed within the interactive television program onto the first data storage medium. The links within the interactive TV program are directly associated with addresses (e.g., Uniform Resource Locators ("URLs")) of interactive television sites, such as web sites. ITRD 104 further records the data associated with the links, preferably separately from the data for the interactive television program. For example, the data associated with the link may be recorded on a second data storage medium, such as a second track of the video tape. Exemplary data associated with a link would be the Hypertext Markup Language ("HTML") data that defines a web page located at an address.

To play back the interactive television program stored on the data storage medium, the user inputs a playback command into ITSB 106, which forwards the playback command to ITRD 104. In response to the playback command, ITRD 104 retrieves the data for the interactive television program from the first data storage medium (e.g., the first track of a video tape) and causes the data, including any links, to be displayed by ITD 108. ITRD 104 also allows the user to selectively display the data associated with the links from the second data storage medium (e.g., the second track of the video tape) when the user selects links during the play back of the interactive television program.

Referring now to **Figure 2**, a more detailed block diagram of an exemplary ITRD **104** is shown. Exemplary ITRD **104** includes an interactive television ("TV") transceiver **206**, which receives interactive television ("TV") signal **102**. Interactive TV transceiver **206** transmits interactive TV signal **102** to ITSB **106**. Audio pre-amplifier ("audio pre-amp") **208** and video pre-amplifier ("video pre-amp") **210** are coupled to interactive TV transceiver **206**. Interactive TV transceiver **206** splits interactive TV signal **102** into a video signal and an audio signal.

Video pre-amp **210** receives and amplifies the video-in signal to produce a video-out signal. Video head **212** receives the amplified video-out signals. Video head **212** reads from and writes video data to a program storage medium, such as to a video track of a video cassette **240**.

Audio pre-amp **208** receives and amplifies the audio-in signal to produce an audio-out signal. The audio-out signal may be separated into two signals: a normal audio signal and a hi-fi audio signal. The normal audio signal is typically read from or written to a normal audio track **1110** (as shown in **Figure 8**) of video cassette **240** while the hi-fi audio signal is read from or written to a hi-fi audio track **1106** (as shown in **Figure 8**). Depending on the quality of the broadcast or recorded signal, the user may choose between a normal audio mode or a hi-fi audio mode. ITRD **104** includes both a high fidelity ("hi-fi") head **216** and a normal audio head **222** to read from and write to normal audio and hi-fi audio tracks **1110** and **1106**, respectively.

Hi-fi head 216 is coupled to switches 214 and 218. Switch 214 may be activated along a switch path 214A to couple hi-fi head 216 to the video-out signal from interactive TV transceiver 206 or may alternatively be activated along a switch path 214B to couple hi-fi head 216 to a program storage medium, such as video cassette 240. Furthermore, switch 218 may be activated along a switch path 218A to couple hi-fi head 216 to the audio-out signal from audio pre-amp 208 to or may alternatively be activated along a switch path 218B to couple hi-fi head 216 to program storage medium, such as video cassette 240. Normal audio head 222 is further coupled to switches 220 and 224. Switch 220 may be activated along a switch path 220A to couple normal audio head 222 to the video-out signal from interactive TV transceiver 206 or may alternatively be activated along a switch path 220B to couple normal audio head 222 to program storage medium, such as video cassette 240. Also, switch 224 may be activated along a switch path 224A to couple normal audio head 222 to the audio-out signal from audio pre-amp 208 or may alternatively be activated along a switch path 224B to couple normal audio head 222 to program storage medium, such as video cassette 240.

An interactive television ("TV") recording device controller 228 is coupled to hi-fi head 216 via switches 214 and 218 and is coupled to normal audio head 222 via switches 220 and 224. Interactive TV recording device controller 228 is further coupled to video head 212. Interactive TV recording device controller 228 controls

the operations (e.g., record, playback, rewind, forward, stop, pause) performed by ITRD 104. Interactive TV recording device controller 228 controls switches 214 and 218 to switch hi-fi head 216 between handling and processing the data associated with the links within interactive TV signal 102 and the audio signal of interactive TV signal 102. Interactive TV recording device controller 228 respectively controls switches 220 and 224 to switch normal audio head 222 between handling and processing the audio signal of interactive TV signal 102 and the data associated with the links within interactive TV signal 102.

For example, if interactive TV recording device controller 228 is programmed to activate switch 214 to switch path 214A, switch 218 to switch path 218B, switch 220 to switch path 220B, and switch 224 to switch path 224A (as shown in Figure 2), then hi-fi track 1106 of video cassette 240 stores or retrieves the data associated with the links within interactive TV signal 102 and normal audio track 1110 of video cassette 240 stores or retrieves the audio signal of interactive TV signal 102. In this case, the paths that result from the activated paths of switches 214, 218, 220, and 224 allow hi-fi head 216 to write the link data within the video-out signal to or read the link data within the video-out signal from the hi-fi track of program storage medium, such as video cassette 240, and further allow normal audio head 222 to write the audio-out signal to or read the audio-out signal from normal audio track 1110 of program storage medium, such as video cassette 240. Alternatively, if interactive TV

recording device controller 228 is programmed to activate switch 214 to switch path 214B, switch 218 to switch path 218A, switch 220 to switch path 220A, and switch 224 to switch path 224B, then hi-fi track 1106 of video cassette 240 stores or retrieves the audio signal of interactive TV signal 102 and normal audio track 1110 of the video tape stores or retrieves the data associated with the links within interactive TV signal 102. In this situation, the paths that result from the activated paths of switches 214, 218, 220, and 224 allow hi-fi head 216 to write the audio-out signal to or read the audio-out signal from hi-fi track 1106 of video cassette 240 and allow normal audio head 222 to write the link data within the video-out signal to or read the link data within the video-out signal from normal audio track 1110 of video cassette 240.

ITRD controller 228 is coupled to a control bus 238. The video tape portion of video cassette 240, which may contain both the first and second storage mediums (e.g., at least two separate tracks of the video tape), is able to interface with video head 212, hi-fi head 216, and normal audio head 222. A tape motor controller and motor unit 227 is also coupled to control bus 238. Tape motor controller and motor unit 227 drives the reels of video cassette 240 to move the video tape in the desired forward or rewind/reverse direction. Video head 212, hi-fi head 216, and normal audio head 222 reads interactive TV signals 102 from or writes interactive TV signals 102 to a series of oblique tracks 1129 as shown in Figure 8. Heads 212, 216, and 222 are positioned to read and write in the direction indicated by an arrow 1128 as shown in Figure 8

so that heads 212, 216, and 222 properly read from or write to oblique tracks 1129.

A memory device 230, a central processing unit ("CPU") 232, and a network controller 234 are also coupled to control bus 238. Memory device 230 provides ITRD 104 with data storage. CPU 232 and ITRD controller 228 control the overall operation of ITRD 104, such as the play, record, rewind, forward, stop, and pause functions of ITRD 104. Network controller 234 controls the communication between ITRD 104 and the interactive network (e.g., Internet or World Wide Web). A port 236 couples ITRD 104 to ITSB 106.

With reference now to **Figure 3**, a more detailed block diagram of an exemplary embodiment of ITSB 106 is shown. As stated earlier, ITSB 106 is a device that converts interactive television signal 102 to an input signal suitable for display by ITD 108 and that also allows the user to access the World Wide Web and display web pages on ITD 108. ITSB 106 includes an interactive TV transceiver 306, which is coupled to an interactive TV display controller 308 that is, in turn, coupled to a control bus 324. A port 315 leading to ITD 108 is also coupled to control bus 324. Interactive TV transceiver 306 receives interactive television ("TV") signal 102 from ITRD 104 and transmits and processes interactive TV signal 102 for display onto ITD 108 through port 315. Interactive TV display controller 308 controls the display of the interactive TV program from interactive TV signal 102 by

ITD 108 through port 315.

ITSB 106 also includes an interactive television ("TV") communication device 314, such as a modem, coupled to control bus 324. Interactive TV communication device 314 is coupled to a network communication line 315, which provides ITSB 106 with access to an interactive television ("TV") network, such as the Internet or World Wide Web. A central processing unit ("CPU") 320, a memory device 310, and user interface controls 322, such as a keyboard, a mouse, and/or web surfing controller, are also coupled to control bus 324. Memory device 310 is used for storage and for caching data associated to a link, and a central processing unit ("CPU") 320 is utilized for controlling operation of ITSB 106. An interactive television ("TV") network controller 318 is further coupled to control bus 324. Interactive TV network controller 318 controls the communication between ITSB 106 and the interactive TV network (e.g., the Internet or World Wide Web) received through network communication line 315. An user utilizes user interface controls 322 to select a link to retrieve and display data associated with the link from the interactive TV network through communication link 105 onto ITD 108. CPU 320 and memory device 310 receive and process the selection of the link by retrieving the data associated with the link from the interactive TV network through network communication line 315 and interactive TV communication device 314 and by storing the data to memory device 310. Interactive TV network controller 318 then controls display of the data from memory device 310 by ITD 108 through port 315.

A port 316 leading to an interactive TV recording device, such as ITRD 104, is also coupled to interactive TV network controller 318. ITRD 104 is coupled to ITSB 106 through port 316. Communication link 105 is coupled to port 316 in order to couple ITRD 104 to ITSB 106. The user enters a command for ITRD 104, such as a record, playback, forward, reverse, stop, or pause command, through user interface controls 322. CPU 320 directs the command from ITSB 106 to ITRD 104 through port 316 and communication link 105. ITRD 104 then receives and correspondingly responds to the command by performing the requested operation based on the received command.

Referring now to **Figure 4**, a flow chart of an exemplary method 400 and program function for operating exemplary ITSB 106 of **Figure 3** and ITRD 104 of **Figure 4** in accordance with the present invention is shown. The program according to method 400 is stored in a memory device, such as memory devices 230 and 310, and is executed by one or more processor, such as CPUs 232 and 320. The program has a control program that is encoded in a computer usable media, such as a memory device 230 or 310, that causes ITSB 106 and/or ITRD 104 to perform the steps of method 400.

Method 400 starts at block 402 and proceeds to block 404, which shows ITSB 106 receiving a user command through user interface controls 322 and also receiving interactive TV signal 102 through interactive TV transceiver 206. Following block 404, block 405 depicts ITSB 106 forwarding the user command to ITRD 104. Method 400 next proceeds to

decision block 406, which depicts a determination of whether the user command is a stop command. If a determination is made at decision block 406 that the user command is a stop command, then method 400 moves from decision block 406 to block 408, which represents ITRD 104 stopping the current operation. Method 400 then ends at block 420. However, if a determination is made at decision block 406 that the user command is not a stop command, then method 400 proceeds from decision block 406 to decision block 410.

Decision block 410 shows a determination of whether interactive TV signal 102 contains links (e.g., hyperlinks). If a determination is made at decision block 410 that interactive TV signal 102 does not contain links, then method 400 moves from decision block 410 to blocks 412, 414, and 415. Block 412 depicts that if the user command is a record command, then ITRD 104 records interactive TV signal 102 on program storage medium, such as video cassette 240 having a video tape 1100. Block 414 shows that if the user command is instead a play command, then ITRD 104 plays interactive TV signal 102 stored on program storage medium, such as video cassette 240. Block 415 represents that if the user command is any other command, then ITRD 104 handles such other command in the appropriate manner. Method 400 then ends at block 420.

Returning to block 410, if a determination is made that interactive TV signal 102 does contain links, then method 400 instead moves from decision block 410 to blocks 416, 418, and 419. Block 416 depicts that if the user

command is a record command, then ITRD 104 records interactive TV signal 102 in a first data storage medium, such as a video signal recording band 1104 and normal audio track 1110 of video tape 1100 in Figure 8. ITRD 104 also records data associated with the links on a second data storage medium, such as hi-fi audio track 1106 of video tape 1100 in Figure 8. Block 418 shows that if the user command is a play command, then ITRD 104 plays and displays on ITD 108 interactive TV signal 102 from the first data storage medium, such as video signal recording band 1104 and normal audio track 1110 of video tape 1100. ITRD 104 allows access to the data associated with the links from the second data storage medium, such as hi-fi audio track 1106 of video tape 1100, and displays the data on ITD 108 when the links are selected (e.g., when the user "clicks" on the links). Block 419 represents that if the user command is any other command, then ITRD 104 handles such other command in the appropriate manner. Method 400 finally ends at block 420.

Referring now to Figure 5, a flow chart of a more-detailed, exemplary method 500 and program function for the recording operation of method 400 is shown. The program has a control program that is encoded in a computer usable media, such as a memory device 230 or 310, that causes ITSB 106 and/or ITRD 104 to perform the steps of method 500. Method 500 starts at block 502 and then proceeds to block 504, which shows that ITSB 106 receives the record command from user interface controls 322 and also receives interactive TV signal 102. Method 500 then proceeds to block 506, which depicts ITSB 106 forwarding

the record command to ITRD 104. ITRD 104, in turn, receives the record command and also receives interactive TV signal 102. Following block 506, block 508 shows ITRD 104 receiving and storing a page or frame from interactive TV signal 102 into a first data storage medium (e.g., video signal recording band 1104 and normal audio track 1110).

Method 500 then moves to block 510. Block 510 illustrates that if a link exists in the stored page or frame, then ITSB 106 selects all links associated with the link up to a pre-determined maximum level (e.g., up to N levels) and accesses all data associated with the links up to the pre-determined level. Also, ITRD 104 stores the link and the associated links up to the pre-determined maximum level into a link list onto program storage medium, such as video cassette 240, and further stores all data related to the associated links up to the pre-determined level onto a second data storage medium (e.g., hi-fi audio track 1106).

For example, referring to Figure 6, an exemplary, hierarchical tree 600 illustrating links that are related to a link in a retrieved page or frame up to a pre-determined maximum link level is shown. Hierarchical tree 600 illustrates links that are related to a link 1A at link level 1 for a retrieved page or frame up to a maximum link level 3 (e.g., N equals three (3)). In method 500, ITRD 104 stores links 1A, 2A, 2B, 2C, 3A, 3B, 3C, 3D, 3E, and 3F in a link list on program storage medium, such as video cassette 240. ITRD 104 associates and stores the data associated with links 1A, 2A, 2B, 2C, 3A, 3B, 3C, 3D,

3E, and 3F into the second data storage medium (e.g., hi-fi audio track 1106). Thus, ITRD 104 stores all links and data related to links that are associated with link levels 1, 2, and 3. However, ITRD 104 does not store any links or data associated with links beyond link level 3.

Returning to **Figure 5**, method 500 proceeds from block 510 to decision block 512, which depicts a determination of whether another link exists on the page or frame from interactive TV signal 102. If a determination is made at decision block 512 that there is another link in the page or frame, then method 500 returns to block 510, and block 510 is repeated for another link. However, if a determination is made at decision block 512 that the page or frame does not contain another link, then method 500 proceeds to decision block 514. Decision block 514 depicts a determination whether interactive TV signal 102 contains another page or frame. If so, then method 500 returns to block 508, and the method steps at blocks 508, 510, and 512 are repeated for another page or frame. On the other hand, if the determination is made at decision block 514 that another page or frame does not exist, such as when a stop command terminates recording (e.g., at the end of the program or when the user depresses a "stop" button), then method 500 ends at block 516.

With reference now to **Figure 7**, a flow chart of a more detailed, exemplary method 700 and program function for the playback operation in method 400 is shown. The program has a control program that is encoded in a computer usable media, such as a memory device 230 or 310,

that causes ITSB 106 and/or ITRD 104 to perform the steps of method 700. Method 700 starts at block 701 and then moves to block 702, which depicts ITSB 106 receiving the play command from user interface controls 322. ITSB 106 forwards the play command to ITRD 104, and ITRD 104 receives the play command. Method 700 then proceeds to block 704, which shows that in response to the play command, ITRD 104 retrieves and displays on ITD 108 a page or frame of interactive TV signal 102 that is stored within the first data storage medium (e.g., video signal recording band 1104 and normal audio track 1110). Following block 704, block 706 illustrates ITRD 104 retrieving from a link list and displaying within the retrieved page or frame all links (e.g., link 1A), if any exist, at the highest link level for the retrieved page or frame (e.g., link level 1 in Figure 6).

Method 700 next moves to decision block 708, which represents a determination of whether a link within the retrieved page or frame has been selected by the user through user interface controls 322. If the determination is made at decision block 708 that a link has been selected (e.g., link 1A in Figure 6 has been selected), then method 700 moves from decision block 708 to block 710. Block 710 illustrates that ITRD 104 retrieves from the second data storage medium (e.g., hi-fi audio track 1106) and displays data associated to the selected link (e.g., link 1A in Figure 6) on ITD 108. ITRD 104 further allows the user through utilization of user interface controls 322 to navigate any links (e.g., links 2A, 2B, 2C, 3A, 3B, 3C, 3D, 3E, and 3F) related to the selected

link (e.g., link 1A in **Figure 6**) up to a pre-determined maximum level (e.g., maximum link level 3). If the user utilizing user interface controls 322 attempts to select any of the associated links beyond the pre-determined maximum level (e.g., beyond link level 3), then ITRD 104 displays on ITD 108 an error message indicating that the data for the selected link is inaccessible or, alternatively, ITRD 104 attempts to retrieve and display the page for the associated link from the Internet or World Wide Web. Method 700 then moves from block 710 to decision block 712. On the other hand, if the determination is made at decision block 708 that a link has not been selected, then method 700 moves directly from decision block 708 to block 712.

Decision block 712 illustrates a determination made whether another page or frame from interactive TV signal 102 stored on the first data storage medium exists. If a determination is made at decision block 712 that such another page or frame does exist, then method 700 returns to block 704 and repeats the method steps in blocks 704, 706, 708, and 710 for another page or frame. On the other hand, if a determination is made at decision block 712 that such another page or frame does not exist, such as when the user play command has been switched to a stop command (which may have been either user activated or activated by the end of the play of interactive TV signal 102 from program storage medium, such as video cassette 240), then method 700 ends at block 718.

With reference now to **Figure 8**, a portion of a video tape 1100 on which data for an interactive television

program from interactive TV signal 102 are stored is shown. Video tape 1100 is transported in the direction indicated by arrow 1126 by tape motor controller and motor 227 of ITRD 104. Video tape 1100 has a width 1102 and includes a video signal recording band 1104 with front and back overlapping bands 1114 and 1116. Video signal recording band 1104 has a contact band 1124 with which at least video head 212 makes contact. Video tape 1100 also has an audio track 1122, including a hi-fi audio track 1106 and a normal audio track 1110. Hi-fi head 216 makes contact with hi-fi audio track 1106 while normal audio head 222 makes contact with normal audio track 1110. A first guard band 1108 exists between hi-fi audio track 1106 and normal audio track 1110. A second guard band 1112 exists between audio track 1122 and video signal recording band 1104. Video tape 1100 further has a control track 1120. A third guard band 1118 exists between control track 1120 and video signal recording band 1104. Guard bands 1108, 1112, and 1118 exist as conventional separations between the other tracks and bands of video tape 1100. Heads 212, 216, and 222 utilize guard bands 1108, 1112, and 1118 to guide in reading from or writing to the correct band or track of video tape 1100.

ITRD controller 228 may be programmed to control hi-fi head 216 and normal audio head 222 so that hi-fi head 216 is setup for reading and writing presentable data associated with the links from and to hi-fi audio track 1106 of video tape 1100, while normal audio head 222 is setup for reading and writing the audio signal of

interactive TV signal 102 from and to normal audio track 1110. Alternatively, ITRD controller 228 may be programmed to control hi-fi head 216 and normal audio head 222 so that hi-fi head 216 is setup for reading and writing the audio signal of interactive TV signal 102 from and to hi-fi audio track 1106, while normal audio head 222 is setup for reading and writing the presentable data associated with the links from and to normal audio track 1110.

Referring now to **Figure 9**, a segment 1103 of video tape 1100 in which the data associated with links are stored on hi-fi audio track 1106 is shown. The same page or frame of interactive TV signal 102 may be stored over segment 1103 of video tape 1100. For efficient storage, data associated with a link(s) for segment 1103 are cached into memory device 310 of ITSB 106 as the data is stored during a record operation to or retrieved during a playback operation from hi-fi audio track 1106. If the user activates a link during the playback of segment 1103, then the data associated with the link(s) are retrieved from memory device 310 which stores the cached data. Alternatively, if the data associated with the link(s) are not found in memory device 310, then ITSB 106 attempts to retrieve and display the current page(s) associated to the link(s) from the Internet or World Wide Web.

The present invention discloses a system, method, and program product for recording presentable data accessed through interactive links displayed within an interactive television program. The present invention allows a VCR or other recording device to record the networked information

for links that were not necessarily displayed or viewed on the television screen and also allows the user to interact with the television program much the same way as when it was originally broadcast. The present invention allows the data associated with any links to be recorded and later played back up to a pre-determined or pre-set linking level. The present invention is not in any way limited to a VCR or video tape technology, and the present invention may be used or adapted to be utilized with any suitable recording medium that records and plays back interactive television signals, such as digital recording devices, digital versatile disks (DVDs), compact disks (CDs), disks, and other memory devices.

While the invention has been particularly shown and described with reference to a preferred embodiment, it will be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope of the invention. For example, although aspects of the present invention have been described with respect to a computer system executing software that directs the functions of the present invention, it should be understood that the present invention may alternatively be implemented as a program product for use with a data processing system. Programs defining the functions of the present invention can be delivered to a data processing system via a variety of signal-bearing media, which include, without limitation, non-rewritable storage media (e.g., CD-ROM), rewritable storage media (e.g., a floppy diskette or hard disk drive), and communication media, such as digital and analog networks. It should be understood, therefore, that such signal-bearing media, when carrying or encoding computer readable instructions that direct the functions of the present invention, represent alternative embodiments of the present invention.

CLAIMS:

What is claimed is:

1. A method for recording presentable data accessed through interactive links displayed within an interactive television program, said method comprising:

receiving, by an interactive television recording device, an interactive television signal containing at least one interactive link associated with presentable data; and

in response to a record input, accessing said presentable data associated with said at least one interactive link and recording said presentable data into a data storage medium.

001130 264636

1 2. The method according to Claim 1, wherein said data
2 storage medium is a second data storage medium, and
3 wherein said recording step further comprises:

4 separately storing said interactive television signal
5 and said at least one interactive link into a first data
6 storage medium.

1 3. The method according to Claim 2, wherein said storing
2 step further comprises:

3 storing said interactive television signal and said
4 at least one interactive link on a first track of a video
5 tape; and

6 storing said presentable data elsewhere on said video
7 tape other than said first track.

8 4. The method according to Claim 2, further comprising:

9 in response to a user play command for activating
10 playing said interactive television signal by said
1 interactive television recording device, playing said
2 interactive television signal from said first data storage
3 medium; and

4 in response to said user activating said at least one
5 interactive television link, retrieving and playing said
6 presentable data associated with said at least one
7 interactive link from said second data storage medium.

8 5. The method according to Claim 1, wherein the data
9 storage medium is a second data storage medium, and
10 wherein:

4 said receiving step further comprises receiving, by
5 said interactive television recording device, a plurality
6 of frames for said interactive television signal;

7 said recording step further comprises:

8
9 storing, by said interactive television
10 recording device, said frames and said at least one
11 associated interactive link for said frames into a first
12 data storage medium; and

13 storing, by said interactive television
14 recording device, each set of said presentable data
15 associated with each of said at least one interactive link
16 into said second data storage medium.

17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000
1001
1002
1003
1004
1005
1006
1007
1008
1009
1010
1011
1012
1013
1014
1015
1016
1017
1018
1019
1020
1021
1022
1023
1024
1025
1026
1027
1028
1029
1030
1031
1032
1033
1034
1035
1036
1037
1038
1039
1040
1041
1042
1043
1044
1045
1046
1047
1048
1049
1050
1051
1052
1053
1054
1055
1056
1057
1058
1059
1060
1061
1062
1063
1064
1065
1066
1067
1068
1069
1070
1071
1072
1073
1074
1075
1076
1077
1078
1079
1080
1081
1082
1083
1084
1085
1086
1087
1088
1089
1090
1091
1092
1093
1094
1095
1096
1097
1098
1099
1100
1101
1102
1103
1104
1105
1106
1107
1108
1109
1110
1111
1112
1113
1114
1115
1116
1117
1118
1119
1120
1121
1122
1123
1124
1125
1126
1127
1128
1129
1130
1131
1132
1133
1134
1135
1136
1137
1138
1139
1140
1141
1142
1143
1144
1145
1146
1147
1148
1149
1150
1151
1152
1153
1154
1155
1156
1157
1158
1159
1160
1161
1162
1163
1164
1165
1166
1167
1168
1169
1170
1171
1172
1173
1174
1175
1176
1177
1178
1179
1180
1181
1182
1183
1184
1185
1186
1187
1188
1189
1190
1191
1192
1193
1194
1195
1196
1197
1198
1199
1200
1201
1202
1203
1204
1205
1206
1207
1208
1209
1210
1211
1212
1213
1214
1215
1216
1217
1218
1219
1220
1221
1222
1223
1224
1225
1226
1227
1228
1229
1230
1231
1232
1233
1234
1235
1236
1237
1238
1239
1240
1241
1242
1243
1244
1245
1246
1247
1248
1249
1250
1251
1252
1253
1254
1255
1256
1257
1258
1259
1260
1261
1262
1263
1264
1265
1266
1267
1268
1269
1270
1271
1272
1273
1274
1275
1276
1277
1278
1279
1280
1281
1282
1283
1284
1285
1286
1287
1288
1289
1290
1291
1292
1293
1294
1295
1296
1297
1298
1299
1300
1301
1302
1303
1304
1305
1306
1307
1308
1309
1310
1311
1312
1313
1314
1315
1316
1317
1318
1319
1320
1321
1322
1323
1324
1325
1326
1327
1328
1329
1330
1331
1332
1333
1334
1335
1336
1337
1338
1339
1340
1341
1342
1343
1344
1345
1346
1347
1348
1349
1350
1351
1352
1353
1354
1355
1356
1357
1358
1359
1360
1361
1362
1363
1364
1365
1366
1367
1368
1369
1370
1371
1372
1373
1374
1375
1376
1377
1378
1379
1380
1381
1382
1383
1384
1385
1386
1387
1388
1389
1390
1391
1392
1393
1394
1395
1396
1397
1398
1399
1400
1401
1402
1403
1404
1405
1406
1407
1408
1409
1410
1411
1412
1413
1414
1415
1416
1417
1418
1419
1420
1421
1422
1423
1424
1425
1426
1427
1428
1429
1430
1431
1432
1433
1434
1435
1436
1437
1438
1439
1440
1441
1442
1443
1444
1445
1446
1447
1448
1449
1450
1451
1452
1453
1454
1455
1456
1457
1458
1459
1460
1461
1462
1463
1464
1465
1466
1467
1468
1469
1470
1471
1472
1473
1474
1475
1476
1477
1478
1479
1480
1481
1482
1483
1484
1485
1486
1487
1488
1489
1490
1491
1492
1493
1494
1495
1496
1497
1498
1499
1500
1501
1502
1503
1504
1505
1506
1507
1508
1509
1510
1511
1512
1513
1514
1515
1516
1517
1518
1519
1520
1521
1522
1523
1524
1525
1526
1527
1528
1529
1530
1531
1532
1533
1534
1535
1536
1537
1538
1539
1540
1541
1542
1543
1544
1545
1546
1547
1548
1549
1550
1551
1552
1553
1554
1555
1556
1557
1558
1559
1560
1561
1562
1563
1564
1565
1566
1567
1568
1569
1570
1571
1572
1573
1574
1575
1576
1577
1578
1579
1580
1581
1582
1583
1584
1585
1586
1587
1588
1589
1590
1591
1592
1593
1594
1595
1596
1597
1598
1599
1600
1601
1602
1603
1604
1605
1606
1607
1608
1609
1610
1611
1612
1613
1614
1615
1616
1617
1618
1619
1620
1621
1622
1623
1624
1625
1626
1627
1628
1629
1630
1631
1632
1633
1634
1635
1636
1637
1638
1639
1640
1641
1642
1643
1644
1645
1646
1647
1648
1649
1650
1651
1652
1653
1654
1655
1656
1657
1658
1659
1660
1661
1662
1663
1664
1665
1666
1667
1668
1669
1670
1671
1672
1673
1674
1675
1676
1677
1678
1679
1680
1681
1682
1683
1684
1685
1686
1687
1688
1689
1690
1691
1692
1693
1694
1695
1696
1697
1698
1699
1700
1701
1702
1703
1704
1705
1706
1707
1708
1709
1710
1711
1712
1713
1714
1715
1716
1717
1718
1719
1720
1721
1722
1723
1724
1725
1726
1727
1728
1729
1730
1731
1732
1733
1734
1735
1736
1737
1738
1739
1740
1741
1742
1743
1744
1745
1746
1747
1748
1749
1750
1751
1752
1753
1754
1755
1756
1757
1758
1759
1760
1761
1762
1763
1764
1765
1766
1767
1768
1769
1770
1771
1772
1773
1774
1775
1776
1777
1778
1779
1780
1781
1782
1783
1784
1785
1786
1787
1788
1789
1790
1791
1792
1793
1794
1795
1796
1797
1798
1799
1800
1801
1802
1803
1804
1805
1806
1807
1808
1809
1810
1811
1812
1813
1814
1815
1816
1817
1818
1819
1820
1821
1822
1823
1824
1825
1826
1827
1828
1829
1830
1831
1832
1833
1834
1835
1836
1837
1838
1839
1840
1841
1842
1843
1844
1845
1846
1847
1848
1849
1850
1851
1852
1853
1854
1855
1856
1857
1858
1859
1860
1861
1862
1863
1864
1865
1866
1867
1868
1869
1870
1871
1872
1873
1874
1875
1876
1877
1878
1879
1880
1881
1882
1883
1884
1885
1886
1887
1888
1889
1890
1891
1892
1893
1894
1895
1896
1897
1898
1899
1900
1901
1902
1903
1904
1905
1906
1907
1908
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
1930
1931
1932
1933
1934
1935
1936
1937
1938
1939
1940
1941
1942
1943
1944
1945
1946
1947
1948
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040
2041
2042
2043
2044
2045
2046
2047
2048
2049
2050
2051
2052
2053
2054
2055
2056
2057
2058
2059
2060
2061
2062
2063
2064
2065
2066
2067
2068
2069
2070
2071
2072
2073
2074
2075
2076
2077
2078
2079
2080
2081
2082
2083
2084
2085
2086
2087
2088
2089
2090
2091
2092
2093
2094
2095
2096
2097
2098
2099
2100
2101
2102
2103
2104
2105
2106
2107
2108
2109
2110
2111
2112
2113
2114
2115
2116
2117
2118
2119
2120
2121
2122
2123
2124
2125
2126
2127
2128
2129
2130
2131
2132
2133
2134
2135
2136
2137
2138
2139
2140
2141
2142
2143
2144
2145
2146
2147
2148
2149
2150
2151
2152
2153
2154
2155
2156
2157
2158
2159
2160
2161
2162
2163
2164
2165
2166
2167
2168
2169
2170
2171
2172
2173
2174
2175
2176
2177
2178
2179
2180
2181
2182
2183
2184
2185
2186
2187
2188
2189
2190
2191

1 8. A system for recording presentable data accessed
2 through interactive links displayed by an interactive
3 television program, said system comprising:

4 an interactive television recording device having an
5 interactive television transceiver for receiving an
6 interactive television signal that includes at least one
7 interactive link associated with presentable data, a write
8 device for writing said interactive television signal to a
9 first data storage medium, a data write device for writing
10 said presentable data to a second data storage medium; and

11 wherein in response to a record input, said
12 interactive television transceiver accesses said
13 presentable data associated with said at least one
14 interactive link and said data write device records said
15 presentable data into said second data storage medium.

001130 26E990

1 9. The system according to Claim 8 wherein:

2 said write device stores said interactive television
3 signal and said at least one interactive link on a first
4 track of a video tape; and

5 said data write device stores said presentable data
6 elsewhere on said video tape other than said first track.

1 10. The system according to Claim 8, wherein the
2 interactive television recording device further comprises:

3 a read device for reading said interactive television
4 signal from the first data storage medium; and

5 a data read device for reading said presentable data
6 from the second data storage medium; and

7 wherein, in response to a user play command for
8 activating playing said interactive television signal by
9 said interactive television recording device, said read
10 device retrieves and plays said interactive television
11 signal from said first data storage medium; and

12 wherein, in response to said user activating said at
13 least one interactive television link, said data read
14 device retrieves and plays said presentable data
15 associated with said at least one interactive link from
16 said second data storage medium.

1 11. The system according to Claim 8 wherein:

2 said interactive television transceiver receives a
3 plurality of frames for said interactive television
4 signal;

5 said write device stores said frames and said at
6 least one associated interactive link for said frames into
7 said first data storage medium; and

8 said data write device stores each set of said
9 presentable data associated with each of said at least one
10 interactive link into said second data storage medium.

1 12. The system according to Claim 8, wherein at least one
2 page of said presentable data includes at least another
3 one interactive link, and wherein said system further
4 comprises:

5 said write device stores said at least another one
6 interactive link into said first data storage medium; and

7 said data write device separately stores a set of
8 presentable data associated with said at least another one
9 interactive link into said second data storage medium.

10 13. The system according to Claim 8, wherein said
11 interactive television recording device further comprises:

12 a network communication device for accessing data for
13 a web site from a network.

14 14. The system according to Claim 8, further comprising:

15 an interactive television set-top box having a signal
16 processor and a network adapter;

17 wherein said interactive television set-top box is
18 coupled to said interactive television recording device;
19 and

20 wherein said signal processor processes said

9 interactive television signal for display and provides
10 communication to a network through the network adapter to
11 access data related to the at least one interactive link.

1 15. A program product for recording presentable data
2 accessed through interactive links displayed by an
3 interactive television program, said program product
4 comprising:

5 a control program encoded within a computer usable
6 media that causes an interactive television recording
7 device to perform the steps of:

8 receiving an interactive television signal containing
9 at least one interactive link associated with presentable
10 data; and

11 in response to a record input, accessing said
12 presentable data associated with said at least one
13 interactive link and recording said presentable data into
14 a data storage medium.

1 16. The program product according to Claim 15, wherein
2 said data storage medium is a second data storage medium,
3 and wherein said recording step further comprises:

4 separately storing said interactive television signal
5 and said at least one interactive link into a first data
6 storage medium.

1 17. The program product according to Claim 16, wherein
2 said storing step further comprises:

3 storing said interactive television signal and said
4 at least one interactive link on a first track of a video
5 tape; and

6 storing said presentable data elsewhere on said video
7 tape other than said first track.

8 18. The program product according to Claim 16, wherein
9 said control program is encoded within said computer
10 usable media that causes said interactive television
11 recording device to further perform the steps of:

12 in response to a user play command for activating
13 playing said interactive television signal by said
14 interactive television recording device, playing said
15 interactive television signal from said first data storage
16 medium; and

17 in response to said user activating said at least one
18 interactive television link, retrieving and playing said
19 presentable data associated with said at least one
20 interactive link from said second data storage medium.

1 19. The program product according to Claim 15, wherein
2 the data storage medium is a second data storage medium,

and wherein:

said receiving step further comprises receiving, by said interactive television recording device, a plurality of frames for said interactive television signal;

said recording step further comprises:

storing, by said interactive television recording device, said frames and said at least one associated interactive link for said frames into a first data storage medium; and

storing, by said interactive television recording device, each set of said presentable data associated with each of said at least one interactive link into said second data storage medium.

20. The program product according to Claim 15, wherein at least one page of said presentable data includes at least another one interactive link, and wherein said control program is encoded within said computer usable media that causes an interactive television recording device to further perform the steps of:

storing said at least another one interactive link into said first data storage medium; and

separately storing a set of presentable data associated with said at least another one interactive link into said second data storage medium.

21. The program product according to Claim 15, wherein said accessing step further comprises accessing data for a web site.

ABSTRACT OF THE DISCLOSURE

SYSTEM, METHOD, AND PROGRAM FOR RECORDING PRESENTABLE DATA
ACCESSED THROUGH INTERACTIVE LINKS DISPLAYED BY AN
INTERACTIVE TELEVISION PROGRAM

A system, method, and program product for recording presentable data accessed through interactive links displayed within an interactive television program are disclosed. In accordance with the present invention, an interactive television recording device receives an interactive television signal containing one or more interactive links associated with presentable data. In response to receipt of a record command, the interactive television recording device records the interactive television program, and the presentable data associated with the one or more interactive links are accessed and recorded into a designated storage medium. In a preferred embodiment, the interactive television signal and the one or more interactive links are stored on a first data storage medium, while the presentable data are separately stored on a second data storage medium. If a play command is received, the interactive television recording device plays the interactive television signal from the first data storage medium. If the user activates an interactive link, the interactive television recording device retrieves and plays the presentable data associated with the interactive link from the second data storage medium.

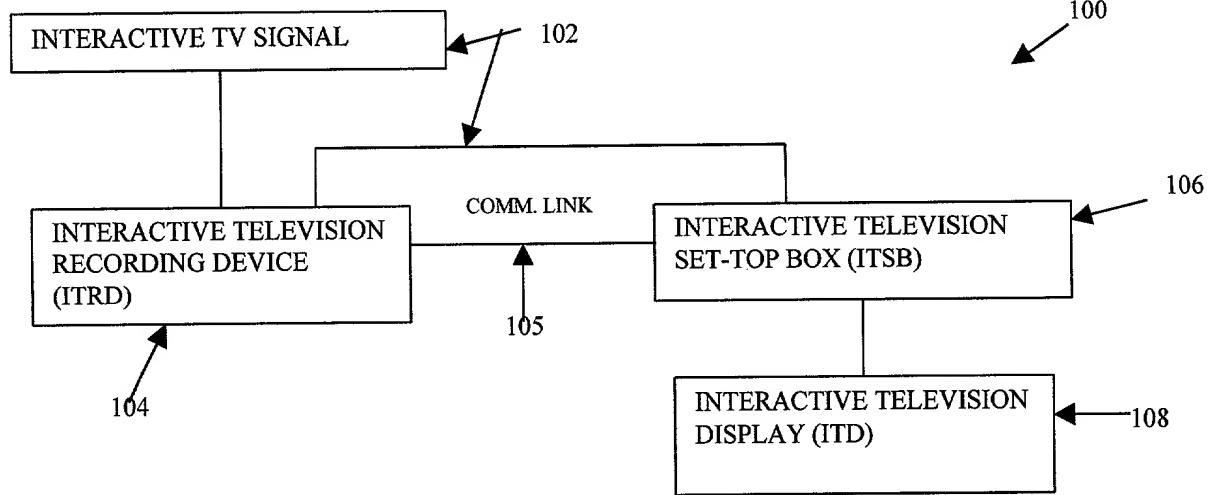


FIGURE 1

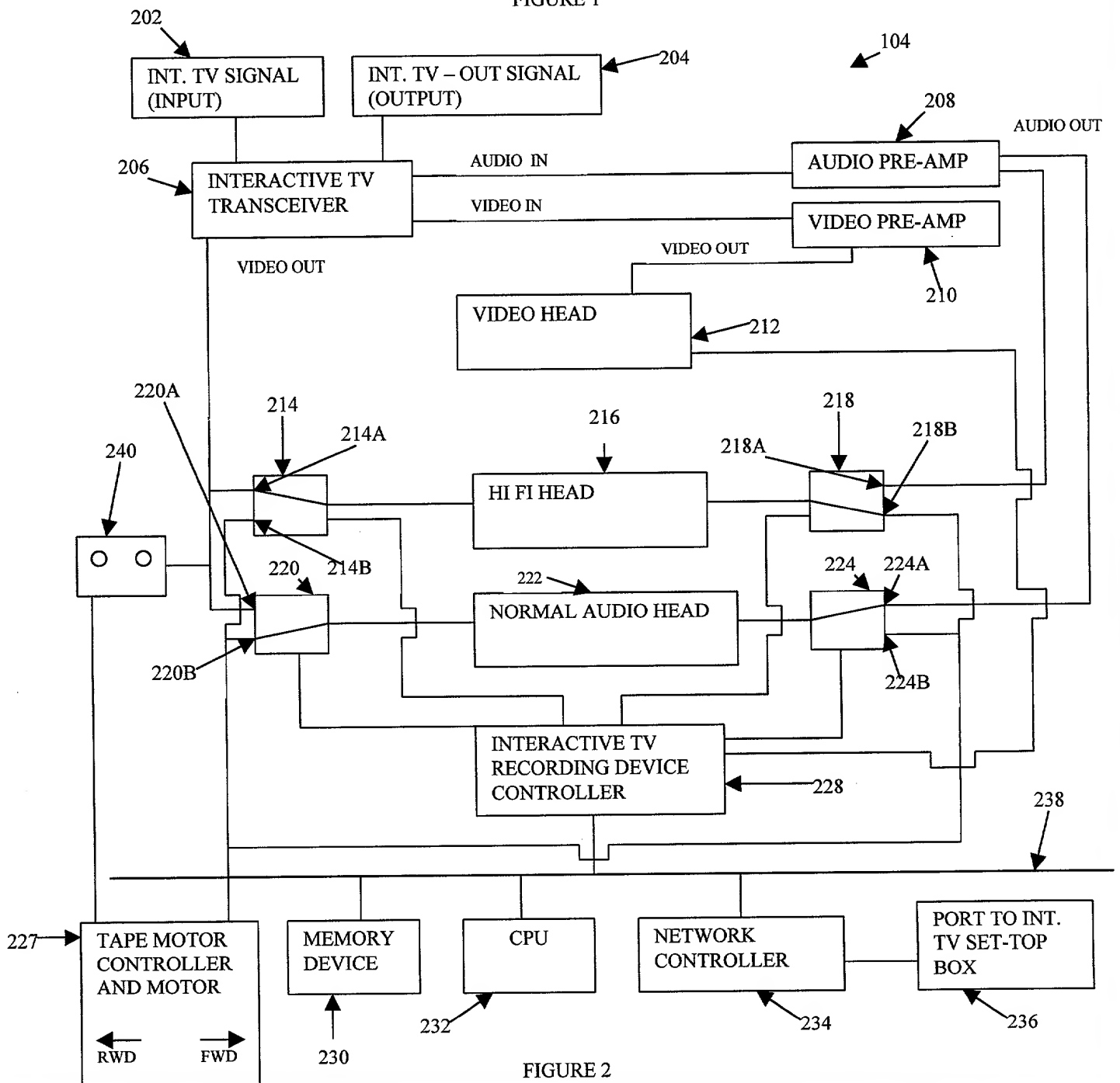


FIGURE 2

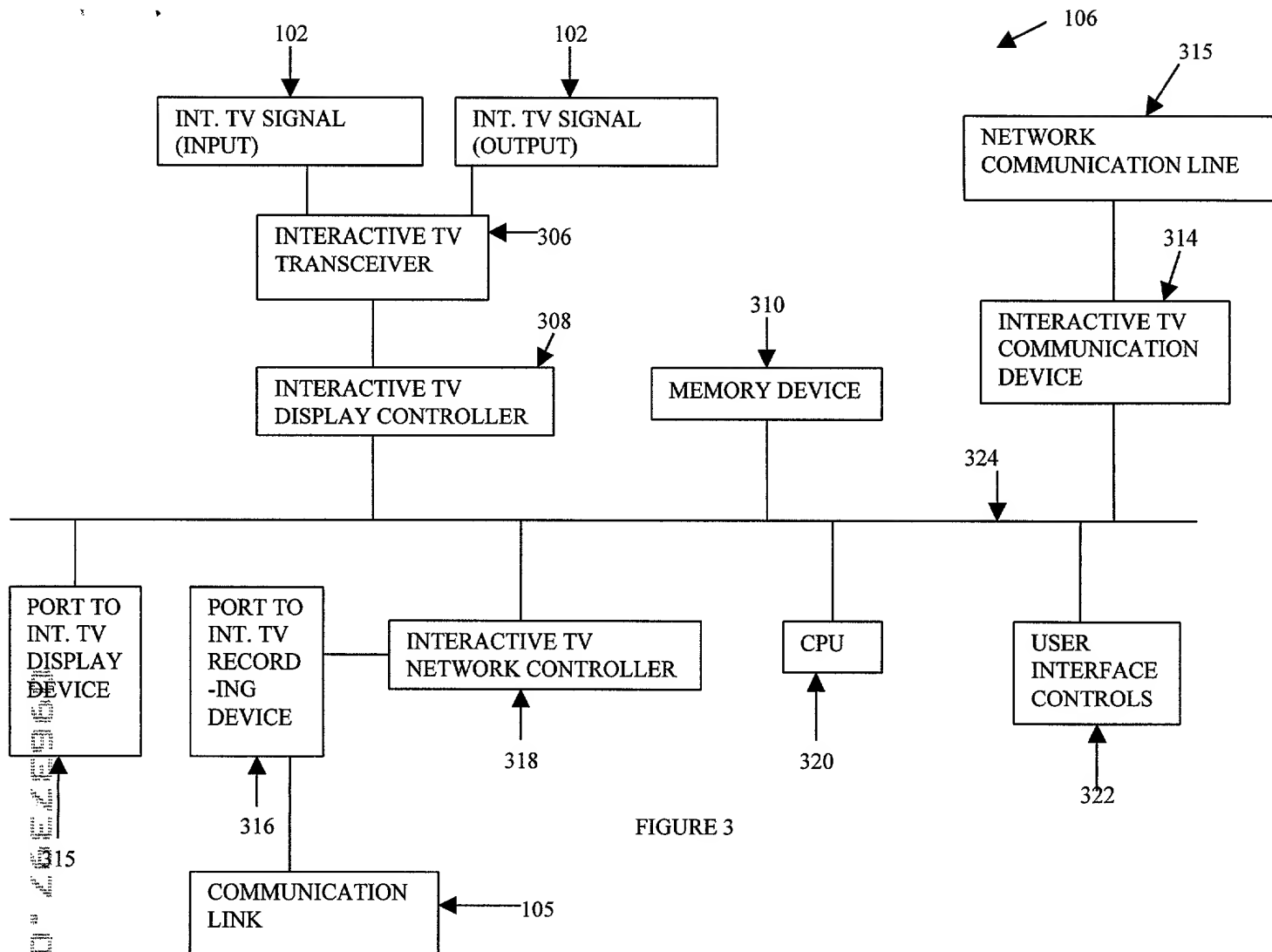


FIGURE 3

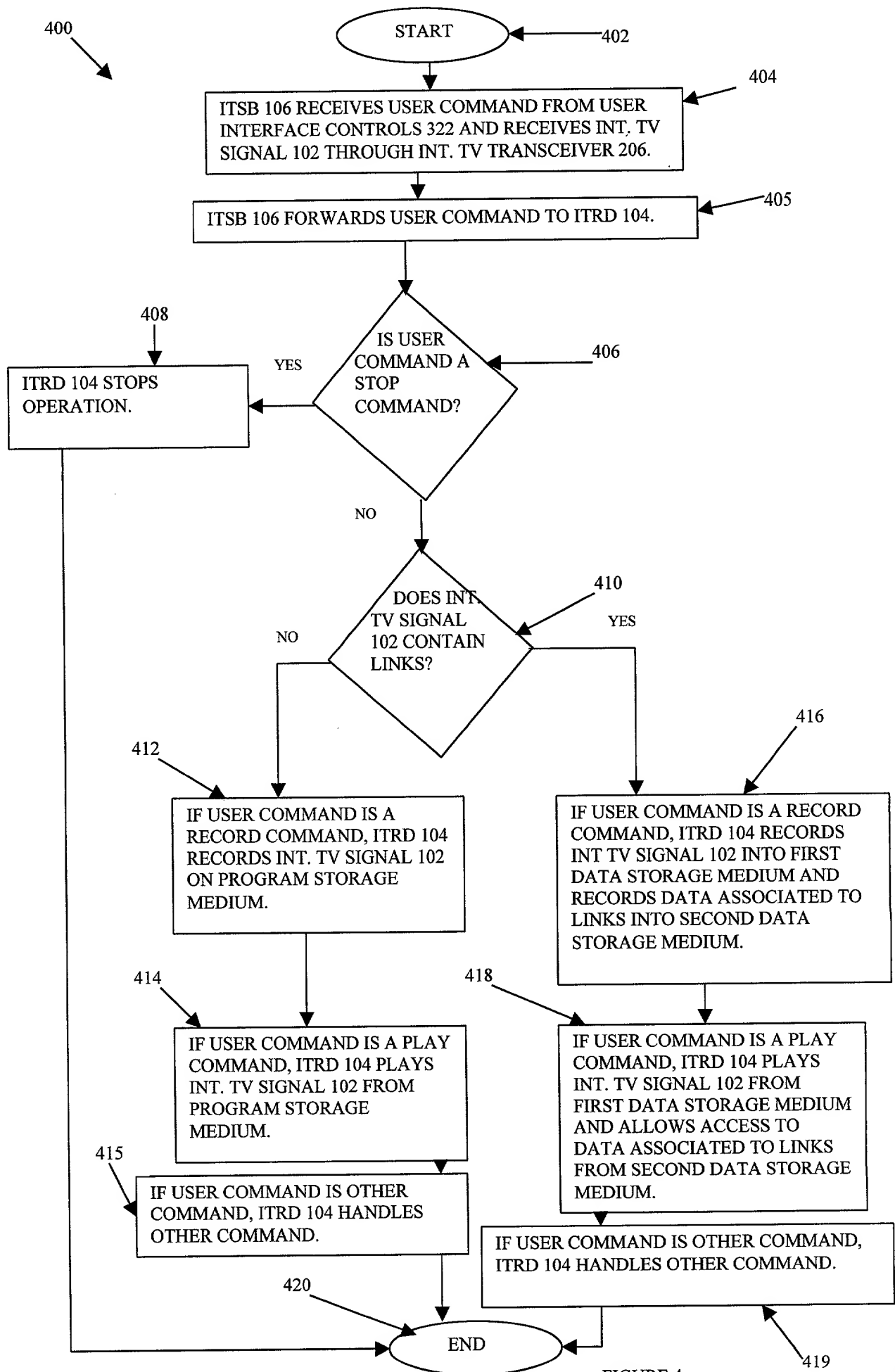


FIGURE 4

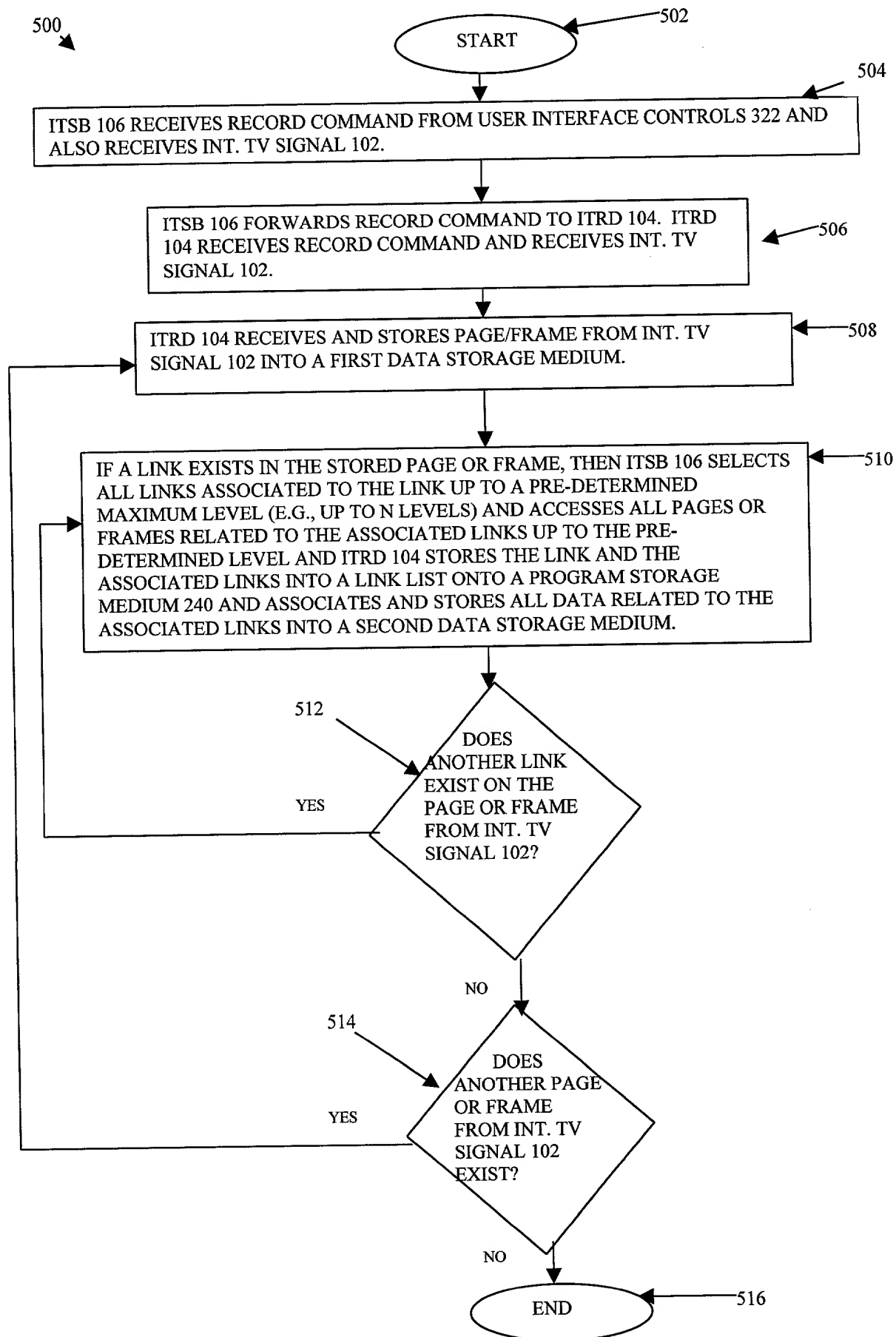


FIGURE 5

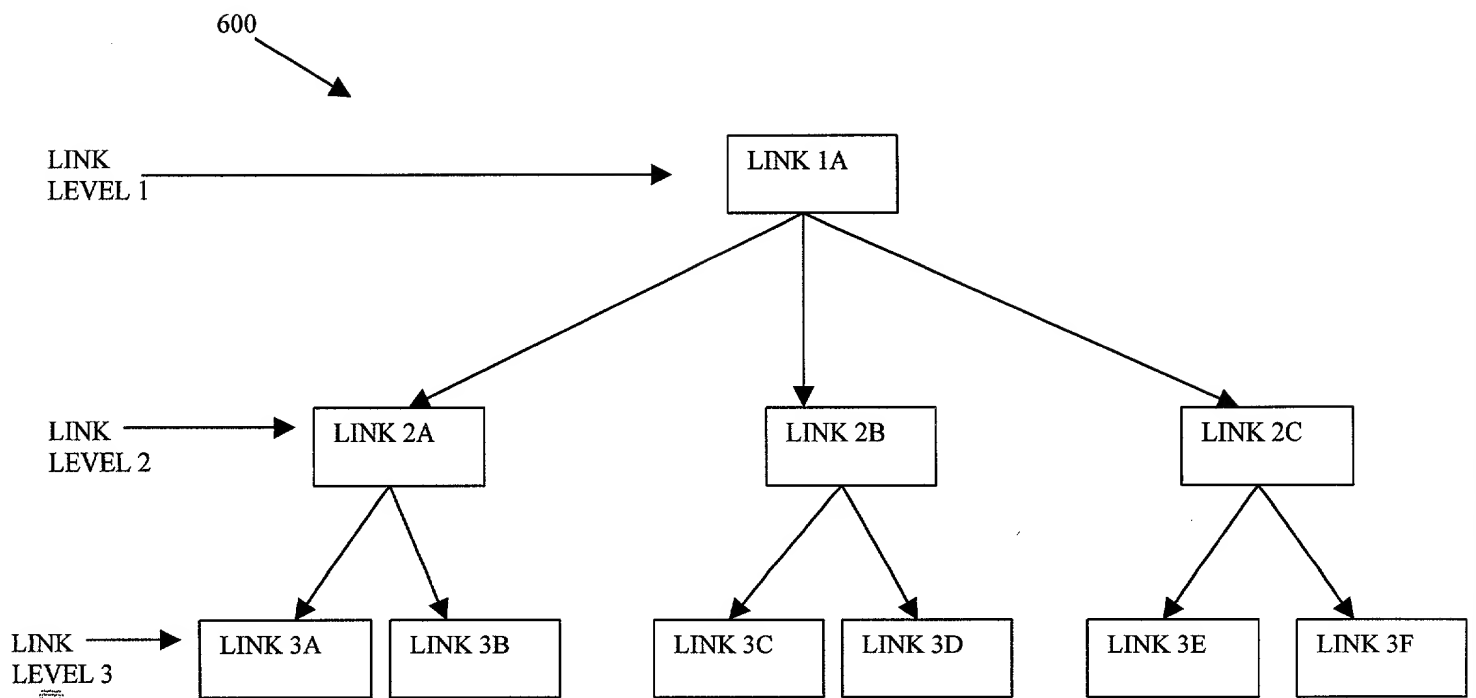


FIGURE 6

001130 4664650

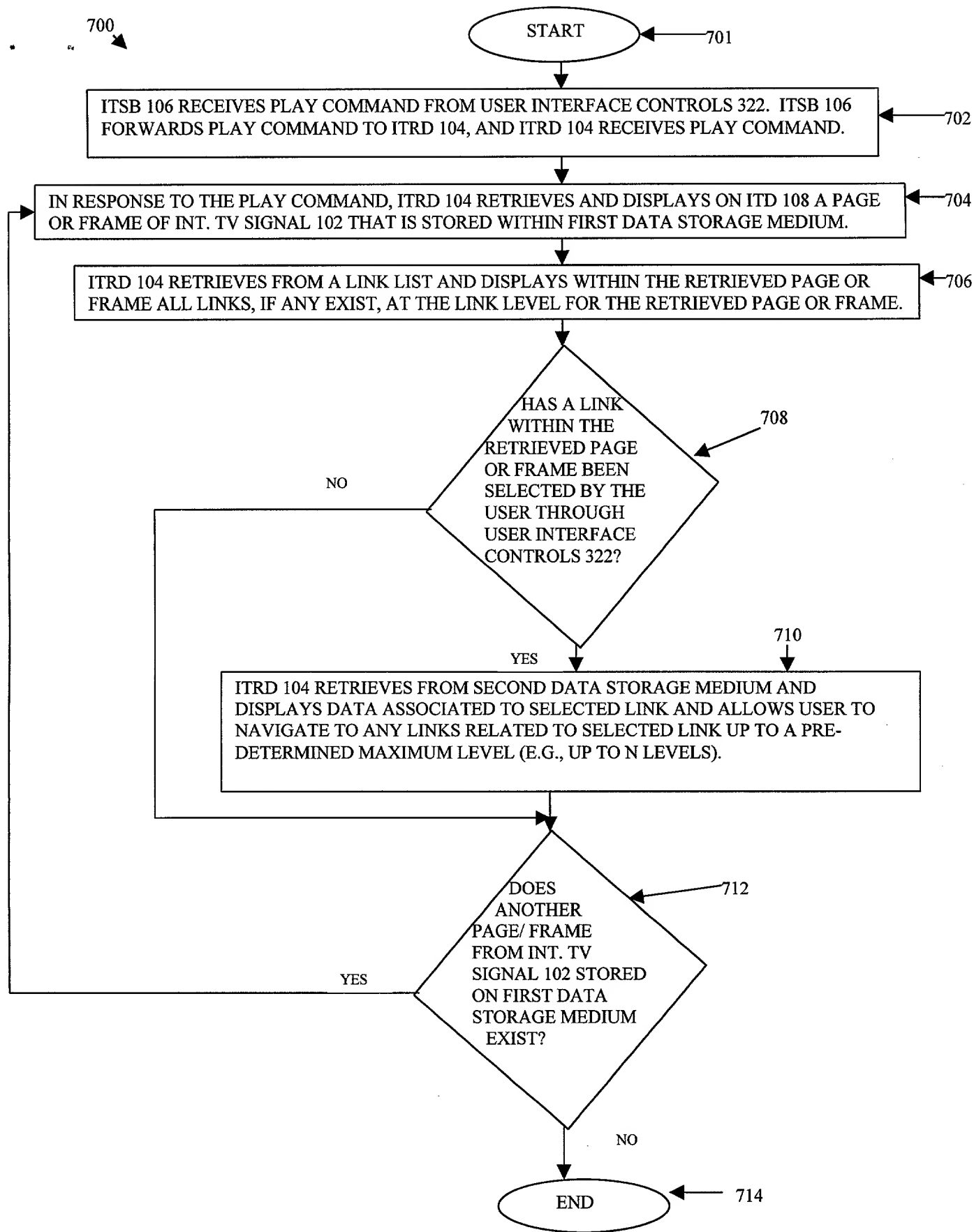


FIGURE 7

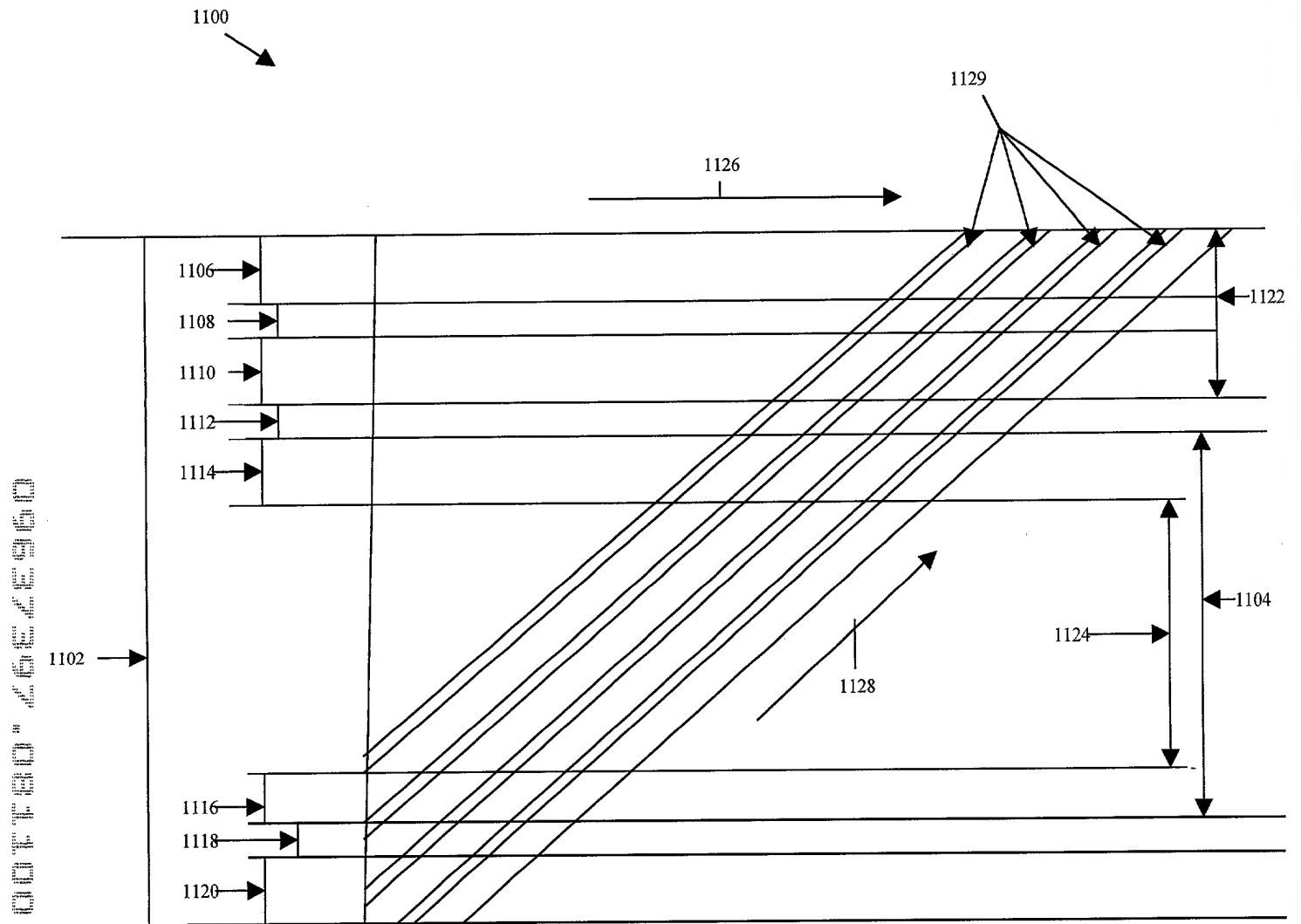


FIGURE 8

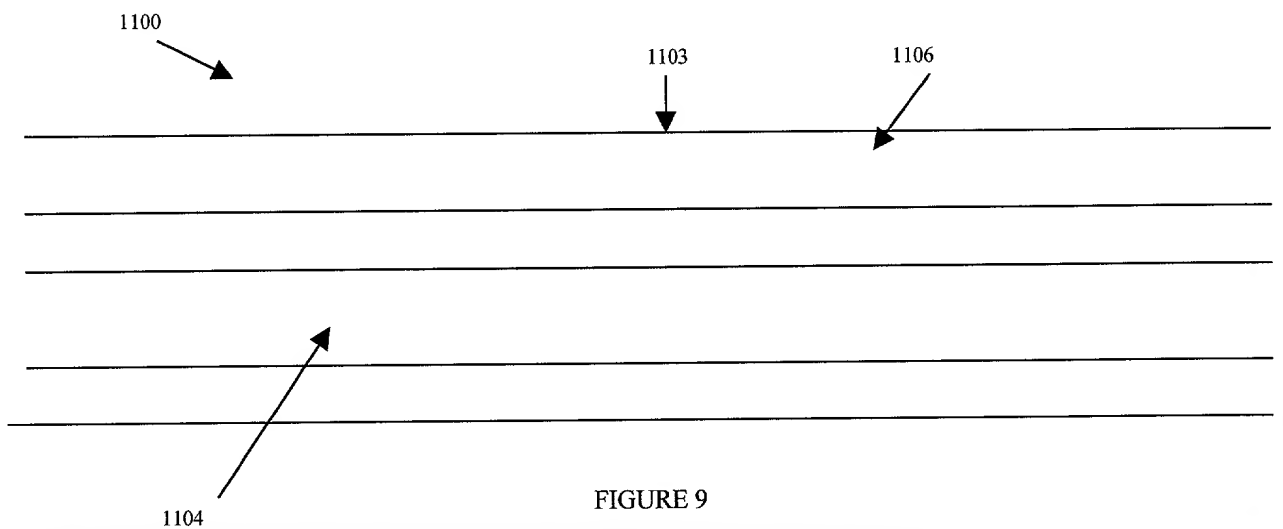


FIGURE 9

DECLARATION AND POWER OF ATTORNEY FOR
PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

SYSTEM, METHOD, AND PROGRAM FOR RECORDING PRESENTABLE DATA ACCESSED THROUGH INTERACTIVE LINKS DISPLAYED BY AN INTERACTIVE TELEVISION PROGRAM

the specification of which (check one)

X is attached hereto.

 was filed on _____
as Application Serial No. _____
and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s):

Priority Claimed

(Number) (Country) (Day/Month/Year) Yes No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information material to the patentability of this application as defined in Title 37, Code of Federal

Regulations, §1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial #)

(Filing Date)

(Status)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorneys and/or agents to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Roy W. Truelson, Reg. No. 34,265; Steven W. Roth, Reg. No. 34,712; James R. Nock, Reg. No. 42,937; William J. McGinnis, Jr., Reg. No. 25,698; Christopher A. Hughes, Reg. No. 26,914; John E. Hoel, Reg. No. 26,279; Joseph C. Redmond, Jr., Reg. No. 18,753; Andrew J. Dillon, Reg. No. 29,634; Daniel E. Venglarik, Reg. No. 39,409; Jack V. Musgrove, Reg. No. 31,986; Brian F. Russell, Reg. No. 40,796; Matthew W. Baca, Reg. No. 42,277; Antony P. Ng, Reg. No. 43,427; Michael R. Barre, Reg. No. 44,023; Andrew Mitchell Harris, Reg. No. 42,638; Richard McCain, Reg. No. 43,785; and Michael Noe, Reg. No. 44,975.

Send correspondence to: Andrew J. Dillon, FELSMAN, BRADLEY, VADEN, GUNTER & DILLON, LLP, Suite 350 Lakewood on the Park, 7600B North Capital of Texas Highway, Austin, Texas 78731, and direct all telephone calls to Andrew J. Dillon (512) 343-6116.

FULL NAME OF SOLE OR FIRST INVENTOR: Cary Lee Bates

INVENTORS SIGNATURE: Cary Lee Bates DATE: 8-9-00

RESIDENCE: 450 73rd Street N.W.
Rochester, Minnesota 55901

CITIZENSHIP: U.S.A.

POST OFFICE ADDRESS: 450 73rd Street N.W.
Rochester, Minnesota 55901

DOCKET NUMBER: ROC920000093US1

FULL NAME OF SECOND INVENTOR: Mahdad Majd

INVENTORS SIGNATURE: Mahdad Majd DATE: 8/8/2000

RESIDENCE: 2916 Stonegate Ct., S.W.
Rochester, Minnesota 55902

CITIZENSHIP: U.S.A.

POST OFFICE ADDRESS: 2916 Stonegate Ct., S.W.
Rochester, Minnesota 55902

FULL NAME OF THIRD INVENTOR: John Matthew Santosuosso

INVENTORS SIGNATURE: John Matthew Santosuosso DATE: 8/8/2000

RESIDENCE: 1402 30th Street N.W.
Rochester, Minnesota 55901

CITIZENSHIP: U.S.A.

POST OFFICE ADDRESS: 1402 30th Street N.W.
Rochester, Minnesota 55901